Space Weather Forecast

Issued on Monday, 03 June 2024 at 00:23 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Moderate activity with a chance of Strong flares. Glancing Coronal Mass Ejection (CME) impacts possible into the period with a chance of Minor or Moderate Geomagnetic Storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Has been Moderate with two Moderate class flares from the largest and most complex region on the visible disc, in the southeast. There are now eight numbered spots on the disc and one unnumbered region. After the largest and magnetically complex region, in the southeast, the next most complex groups are in the southwest. Both are moderately magnetically complex, with some ongoing growth and consolidation. Other regions on the disc are smaller, simpler with little or no changes. There are also currently a number of large and significant filaments, ropes of plasma and magnetic field structures extending out from the Sun's surface, on the solar disc.

No Earth-directed CMEs have been observed in available imagery.

Solar Wind / Geomagnetic Activity: Solar winds persisting at background levels, varying between 310-360 km/s. The Interplanetary Magnetic Field strength was generally weak with the important north-south component also varying weakly. Geomagnetic activity was Quiet (Kp 0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: High to Moderate activity is forecast with further Moderate class expected and a chance of isolated Strong class flares, mainly from the complex sunspot in the southeast.

Solar Wind / Geomagnetic Activity: A weak CME from a flare on 31 May is expected either early today (3rd Jun), although confidence is low with the strength of any arrival due to the faint and apparent weak nature of the CME. Analysis of a CME associated with a flare on the 1st June from the complex sunspot region in the southeast, suggests the potential for a glancing impact sometime later tomorrow (4th Jun). Otherwise largely background winds are likely to persist, with a chance of becoming slightly enhanced for a time today, however this is also low confidence.

Geomagnetic activity is forecast to be Quiet initially, but perhaps increasing to give Unsettled to Active intervals with any fast wind onset today (3rd Jun) or weak CME arrival, with a slight chance of G1/Minor Storm intervals. The risk of Active conditions increases into day 2 (4th Jun), with an increased chance of Minor to Moderate Storm intervals associated with any CME arrival, this risk easing into day 3 (5th Jun). Day 4 (6th June) mainly Quiet conditions are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is likely to persist at background levels, but with a slight chance of rising above the S1 Minor Storm level in response to any further notable flares.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	60	30	5
Strong	G3	No	1	5	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	75	75	75	75
Very Active	R3 to R5 X	No	30	30	30	30

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	20	20	20	20
Very Active	≥ S3 *	No	5	5	5	5

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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